AMENDMENTS TO THE CLAIMS

1.   (Currently amended) A pixel cell comprising:

a photo-conversion device for producing photogenerated charges; and

a circuit for producing an output signal from said photogenerated charges, said circuit comprising at least a single transistor structure, the at least single transistor structure comprising:

at least one semiconductor channel region;

at least one gate for controlling the channel region; and

first and second leads respectively coupled to a source region on one side of the at least one channel region and a drain region on an opposite side of the at least one channel region, wherein the at least single transistor structure is configured to have at least two threshold voltages associated with the at least one channel region at a same time, and wherein a current-voltage characteristic of the single transistor structure is determined at least in part by the threshold voltages.

2.   (Previously presented) The pixel cell of claim 1, wherein the at least single transistor structure is an active element for operating at least in part in a sub-threshold region.

3.   (Previously presented) The pixel cell of claim 1, wherein the at least single transistor structure is a source follower transistor structure.

4.   (Previously presented) The pixel cell of claim 1, wherein the at least single transistor structure comprises first, second, and third channel regions connected in parallel.

2

5.   (Previously presented) The pixel cell of claim 4, wherein the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to second and third threshold voltages, respectively, and wherein the first threshold voltage is higher than the second and third threshold voltages.

6.   (Previously presented) The pixel cell of claim 4, wherein a first channel region corresponds to a first threshold voltage and second and third channel regions correspond to a second threshold voltage, and wherein the first threshold voltage is higher than the second threshold voltage.

7.   (Previously presented) The pixel cell of claim 1, wherein the at least single transistor structure comprises one channel region, and wherein the channel region comprises a normal conduction path and at least one parasitic conduction path.

8.   (Original) The pixel cell of claim 7, wherein the normal conduction path is associated with a highest first threshold voltage and the at least one parasitic conduction path is associated with at least a second lower threshold voltage.

9.   (Previously presented) The pixel cell of claim 8, wherein the single transistor structure comprises first and second parasitic conduction paths, and wherein the first and second parasitic conduction paths are associated with a second threshold voltage.

10.   (Previously presented) The pixel cell of claim 8, wherein the single transistor structure comprises first and second parasitic conduction paths, and wherein the first and second parasitic conduction paths are associated with second and third threshold voltages, respectively.

3

11.   (Previously presented) The pixel cell of claim 1, wherein the two or more threshold voltages result at least in part from the at least one transistor structure having any of: two or more gate oxide thicknesses, two or more channel dopant concentrations, and two or more gate work-functions.

12.   (Previously presented) The pixel cell of claim 1, wherein the current-voltage characteristic is such that a sub-threshold region and a linear region provide a same or similar amplification factor for a signal.

Claim 13 (Canceled).

14.   The pixel cell of claim 1, wherein the photo-conversion device is a pinned photodiode.

Claims 15-19 (Canceled).

20.   (Currently amended) A pixel cell comprising:

a photo-conversion device for producing photogenerated charges; and

a circuit for producing an output signal from said photogenerated charges, said circuit comprising at least a̲ single transistor structure, the at least single transistor structure comprising:

a channel region;

a gate for controlling the channel region; and

first and second leads respectively coupled to a source region on one side of the channel region and a drain region on an opposite side of the channel region, wherein the channel region comprises a normal conduction path and at least one

4

parasitic conduction path, and wherein the normal conduction path is associated with a highest first threshold voltage, and wherein the at least one parasitic conduction path is associated with at least a second threshold voltage, and wherein a current-voltage characteristic of the single transistor structure is determined at least in part by the threshold voltages.

21. (Previously presented) The pixel cell of claim 20, wherein the at least single transistor structure is an active element for operating at least in part in a sub-threshold region.

22. (Previously presented) The pixel cell of claim 20, wherein the at least single transistor structure is a source follower transistor structure.

23. (Original) The pixel cell of claim 20, wherein the channel region comprises first and second parasitic conduction paths, and wherein the first and second parasitic conduction paths are associated with second and third threshold voltages, respectively.

24. (Original) The pixel cell of claim 20, wherein the first and at least second threshold voltages result at least in part from the at least one transistor structure having any of: at least two gate oxide thicknesses and at least two channel dopant concentrations.

25. (Previously presented) An image sensor, comprising:

an array of pixel cells, wherein at least one of the pixel cells comprises:

a photo-conversion device for producing photogenerated charges; and

5

a circuit for producing an output signal from said photogenerated charges, said circuit comprising a single transistor structure, the single transistor structure comprising:

at least one semiconductor channel region;

at least one gate for controlling the channel region; and

first and second leads respectively coupled to a source region on one side of the at least one channel region and a drain region on an opposite side of the at least one channel region, wherein the transistor structure is configured to have at least two threshold voltages associated with the at least one channel region at a same time, and wherein a current-voltage characteristic of the transistor structure is determined at least in part by the threshold voltages.

26.   (Previously presented) The image sensor of claim 25, wherein the single transistor structure is an active element for operating at least in part in a sub-threshold region.

27.   (Previously presented) The image sensor of claim 25, wherein the single transistor structure is a source follower transistor structure.

28.   (Previously presented) The image sensor of claim 25, wherein the single transistor structure comprises first, second, and third channel regions connected in parallel.

29.   (Previously presented) The image sensor of claim 28, wherein the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to second and third threshold voltages, respectively, and

6

wherein the first threshold voltage is higher than the second and third threshold voltages.

30.   (Previously presented) The image sensor of claim 28, wherein the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to a second threshold voltage, and wherein the first threshold voltage is higher than the second threshold voltage.

31.   (Previously presented) The image sensor of claim 25, wherein the single transistor structure comprises one channel region, and wherein the channel region comprises a normal conduction path and at least one parasitic conduction path.

32.   (Original) The image sensor of claim 31, wherein the normal conduction path is associated with a highest first threshold voltage and the at least one parasitic conduction path is associated with at least a second threshold voltage.

33.   (Previously presented) The image sensor of claim 32, wherein the single transistor structure comprises first and second parasitic conduction paths, and wherein the first and second parasitic conduction paths are associated with a second threshold voltage.

34.   (Previously presented) The image sensor of claim 32, wherein the single transistor structure comprises first and second parasitic conduction paths, and wherein the first and second parasitic conduction paths are associated with second and third threshold voltages, respectively.

35.   (Original) The image sensor of claim 25, wherein the two or more threshold voltages result at least in part from the transistor structure having one or

7

more of: two or more gate oxide thicknesses, two or more channel dopant

concentrations, and two or more gate work-functions.

36.   (Previously presented) The image sensor of claim 25, wherein the current-

voltage characteristic is such that a sub-threshold region and a linear region provide a

same or similar amplification factor for a signal.

Claims 37-38 (Canceled).

39.   (Previously presented) A processor system, comprising:

(i) a processor; and

(ii) an image sensor coupled to the processor, the image sensor

comprising:

one or more pixel cells, the one or more pixel cells comprising:

a photo-conversion device for producing photogenerated charges; and a

circuit for producing an output signal from said photogenerated charges, said circuit

comprising a single transistor structure, the single transistor structure comprising:

at least one semiconductor channel region;

at least one gate for controlling the channel region; and

first and second leads respectively coupled to a source region on one side

of the at least one channel region and a drain region on an opposite side of the at least

one channel region, wherein the transistor structure is configured to have at least two

threshold voltages associated with the at least one channel region at a same time, and

wherein a current-voltage characteristic of the transistor structure is determined at least in part by the threshold voltages.

Claims 40-59 (Canceled).

60.   (Previously presented) The system of claim 39, wherein the single transistor structure is an active element for operating at least in part in a sub-threshold region.

61.   (Previously presented) The system of claim 39, wherein the single transistor structure comprises first, second, and third channel regions connected in parallel.

62.   (Previously presented) The system of claim 39, wherein the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to second and third threshold voltages, respectively, and wherein the first, second and third threshold voltages are different from one another.

63.   (Previously presented) The system of claim 28, wherein the first channel region corresponds to a first threshold voltage and the second and third channel regions correspond to a second threshold voltage, and wherein the first threshold voltage is different than the second threshold voltage.

64.   (Previously presented) The pixel cell of claim 1, wherein the at least single transistor structure is a reset transistor.

65.   (Previously presented) The pixel cell of claim 1, wherein the at least single transistor structure is a source follower transistor.

66.   (Previously presented) The pixel cell of claim 1, wherein the at least single transistor structure is a transfer transistor.

67.   (Previously presented) The pixel cell of claim 20, wherein the at least single transistor structure is a reset transistor.

68.   (Previously presented) The pixel cell of claim 20, wherein the at least single transistor structure is a source follower transistor.

69.   (Previously presented) The pixel cell of claim 20, wherein the at least single transistor structure is a transfer transistor.

10